Mithun Parab

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Education

Master of Science Computer Science 07/22 – 07/24
R. J. College, Mumbai, India, CGPA: 8.88/10.00
Bachelor of Science Information Technology 07/19 – 07/22
K. J. Somaiya College Of Science And Commerce, Mumbai, India, CGPA: 9.07/10.00

Experience

Sejong University, Seoul, South Korea Research Intern
Dr. YG. Kim & Dr. Palash Ingle 04/24 – 10/24
Advance video anomaly detection technologies by developing robust models to identify and analyze anomalies in video data.

Indian Institute of Information Technology, Sri City, India Research Intern
Dr. Pavan Kumar B.N., Department of CSE, 09/23 – 03/24
Improved 3D SLAM precision and effectiveness using uncalibrated image-based algorithms.

Selected Publications

A Comprehensive Study on LLM Agent Challenges,
Palash Ingle, **Mithun Parab**, Pranay Lendave, B. N. Pavan Kumar, AAAI 2024 Spring Symposia on User-Aligned Assessment of Adaptive AI Systems.

Innovative Method for Camouflaged Wildlife Segmentation in Agricultural Practices, **Mithun Parab**, Palash Ingle, *IEEE Xplore Digital Library*, International Conference on Advancement in Computation & Computer Technologies, 10.1109/InCACCT61598.2024.10551184

Image Enhancement and Exposure Correction Using Convolutional Neural Network, **Mithun Parab**, Amisha Bhanushali, Palash Ingle, B. N. Pavan Kumar, *SN Computer Science*, Volume 4, Number 2, 2023, doi: 10.1007/s42979-022-01608-w

Projects

Multi-Task Learning Network for 3D Surgical Scene Reconstruction
Developed a multi-task learning network for 3D reconstruction of surgical scenes, utilizing dynamic weight allocation for losses to achieve an optimal equilibrium between task performances.

Monte Carlo Tree Search with Neural Network for 3D Bin Packing
Developed a Monte Carlo Tree Search algorithm integrated with policy and value networks for solving 3D bin packing problems, optimizing placement in dynamic packing environments.

DINO-v2-based Method for Video Anomaly Detection
Developed a DINO-v2-based approach for video anomaly detection, using latent feature extraction and dimensionality reduction with VAE, ICA, and PCA. Anomalies are scored with One-Class SVM or CNN, with ICA, PCA, and OC-CNN included for ablation studies.

3D Novel View Synthesis from Un-calibrated Images
Developed a system for synthesizing new 3D views from un-calibrated images, using a NeRF model optimized for Structure from Motion challenges via distinct MLP modules.

3D Video Synopsis with Multi-task Learning
Developed a condensed video synopsis algorithm and Multi-Task Learning network for abnormal activity segmentation and depth mapping, facilitating 3D video summary reconstruction.

Scholastic Achievements

Achieved a perfect 10/10 GPA in the last semester and maintained above a 9/10 GPA in the first year of my master's program.
Certified as an **Elite** in the NPTEL course "Introduction to Machine Learning" by IIT Kharagpur. (2023)
Awarded the **Best Paper** of the International Conference on Adaptive Computational Intelligence (ICACI 2022). (2022)

Skills & Interests

Languages: C,C++, Java, Julia, Python, R
Tools: LaTeX, Bash, Matlab, GNU Octave, Git
Technologies: AWS, GCE, Kafka
Interests: ML, CV, LLM agents